Air Emissions

Boiler Emissions - Fuel Oil

Date: 0-00-00

Company Name:	**Test**
Facility Name:	**Test B**
Equipment Name:	**Admin E Generator**

Enter Maximum Heat Rate, (Btu/hr or Btuh) **150000000**

Fuel Oil Consumption per Hour (gallons per hour) **1071.43**

Calculated using a 140,000 Btu/gal heating value for fuel oil and 100% boiler load.

Enter Sulfur Content of Diesel Fuel **0.05**

Enter Number Hours Operated per Year **100**

The calculated emissions will be :

Emission Factors listed below are for **Fuel Oil Boilers . . . . . .**
Greater Than 100 Million Btuh

b	c	d	
Pollutant	**Emission Factor**	**Emission Rate**	**Emissions**
	lbs/gal	lbs/hr c x gal / hour	tons/yr d x hour/2000
Particulate Material - PM_{10}	0.0033	3.536	**0.18**
Sulfur Dioxide - SO_2	0.00785	8.411	**0.42**
Nitrogen Oxides - NO_x	0.024	25.714	**1.29**
Volatile Organic Compounds - VOC	0.00034	0.364	**0.02**
Carbon Monoxide - CO	0.005	5.357	**0.27**

Note: This calculation chooses the correct set of emission factors, from the table below, based on the boiler heat rate. The correct emission factor will automatically be chosen to match the maximum heat rate input. Each engine must have it's own calculation, do **not** total the heat rates for the site and use the one number for emission calculations.

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Instructions

These calculation sheets have been written using Microsoft Excel.

Step 1 Fill in the name and identifying information.
Enter the boiler heat output, in Btu/hour or Btuh, from the boiler name plate. Every boiler needs an emission calculation sheet.

Step 2 Enter the Sulfur content . On road diesel has a 0.05% sulfur content, off road diesel has a 0.5% sulfur content. Check your contract to find out the sulfur content. If the sulfur content is 0.05% enter 0.05 on the line.

Step 3 Enter the hours the boiler will be operated. If you don't know the hours of operation but you do know the fuel consumption enter the quantity below. And then enter in the cell E15.
Fuel Consumption (gal / year) = 1200
Hours of Operation = 1.12

Step 4 Once you have entered in all the values click anywhere on the sheet and the calculation will be done by the program. Remember the information is being used for permitting purposes, so be sure the numbers are right and realistic.

Step 5 If this is the only piece of equipment you are done with the calculations.
Save a copy by printing out the page.
You now need to determine what type of permit you need . .. . .

Step 6 If this is one of several emission points download the Air Emission Summary page and enter the equipment name and emissions.

Emission Factors - Fuel Oil Boilers	Less Than 100 Million Btuh (lb/gal)	Greater Than 100 Million Btuh (lb/gal)
Particulate Material - PM_{10}	0.0033	0.0033
Sulfur Dioxide - SO2	0.0071	0.00785
Nitrogen Oxides - NO_x	0.02	0.024
Volatile Organic Compounds - VOC	0.00034	0.00034
Carbon Monoxide - CO	0.005	0.005

Emission factors are from EPA AP 42, 1.3 Fuel Oil Combustion 9/98, Emission Factors are for a uncontrolled boiler. If you have manufacturers emission rates you may use them. Please include the manufacturers literature as a reference for why you are using different factors. Emission factors used could become a permit condition, and the Division of Air Quality can ask for a test to confirm emissions.

The particulate material factor is the addition of the filterable(2.0) and the condensable(1.3) factors. The sulfur dioxide value is actually a calculated value based on the sulfur content: Less than 100 MMBTUh is 0.142S and Greater than 100 MMBtuh is 0.157S.